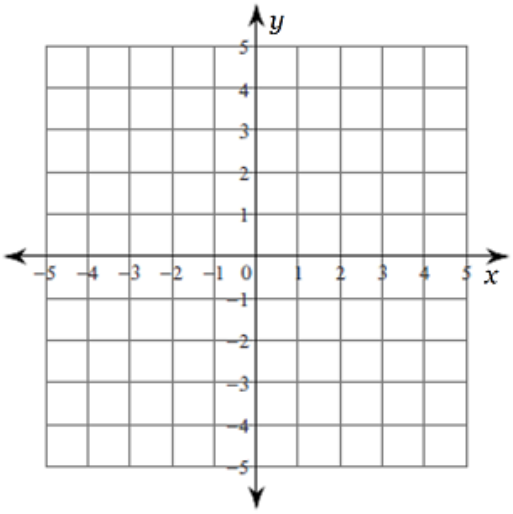
Algebra 2 Course, Unit 2 – Worksheet 14 – Solving Systems of Linear Equations by Graphing, Part 1

Algebra 2 Course, Unit 2 – Worksheet 14 – Solving Systems of Linear Equations by Graphing, Part 1

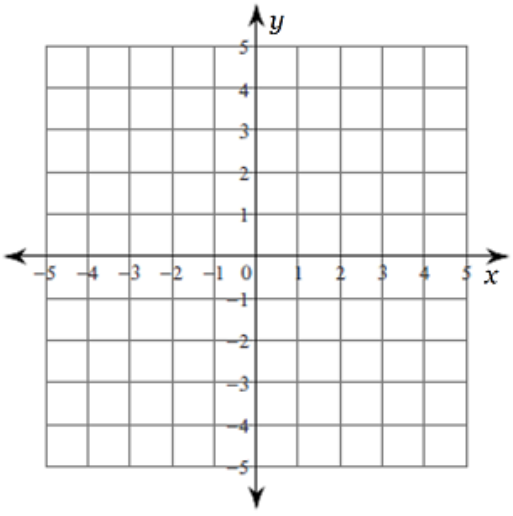
1. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y = -\frac{1}{2}x - 1 \\ y = \frac{1}{4}x - 4 \end{cases}$$



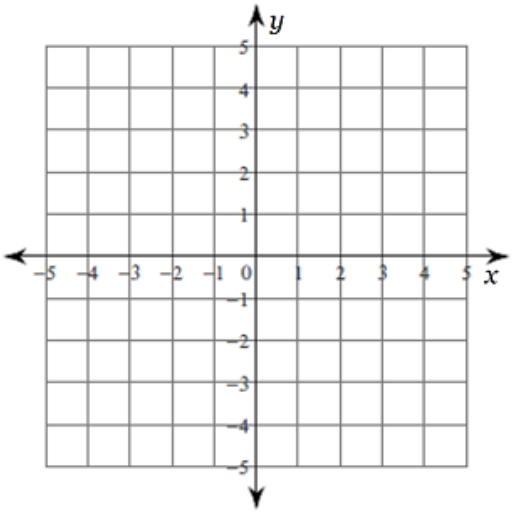
2. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y = -1 \\ y = -\frac{5}{2}x + 4 \end{cases}$$



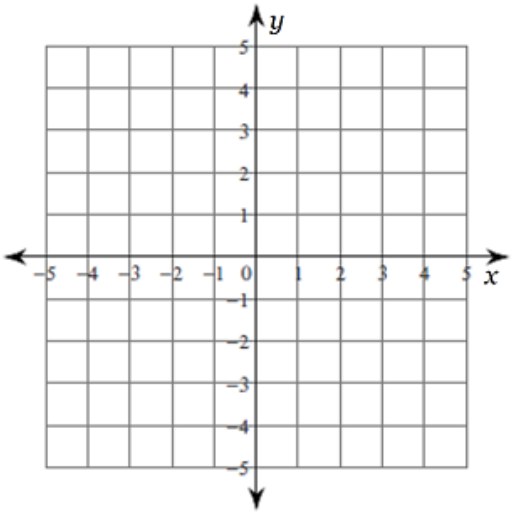
3. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y = 3x - 4 \\ y = -\frac{1}{2}x + 3 \end{cases}$$



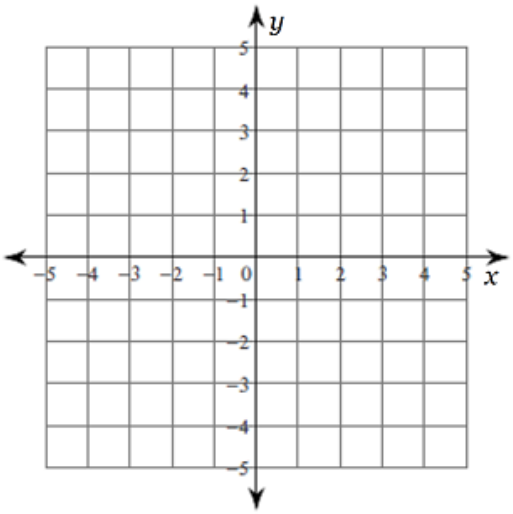
4. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y = -\frac{1}{2}x - 2 \\ y = -\frac{3}{2}x + 2 \end{cases}$$



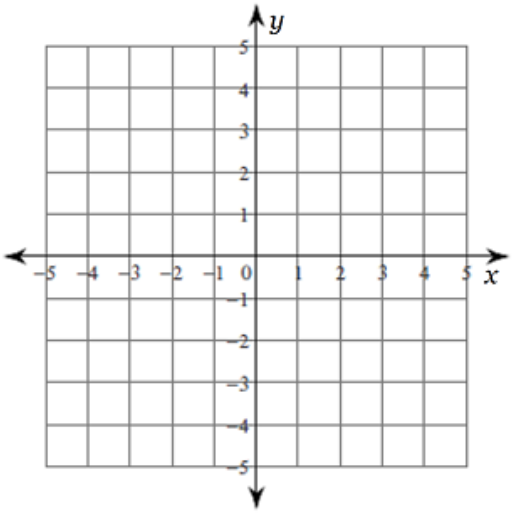
5. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} 3x + y = 4 \\ 3x - y = 2 \end{cases}$$



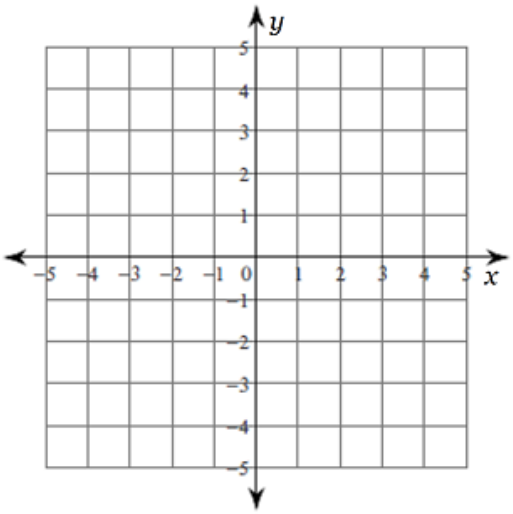
6. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} x - y = -2 \\ x = -3 \end{cases}$$



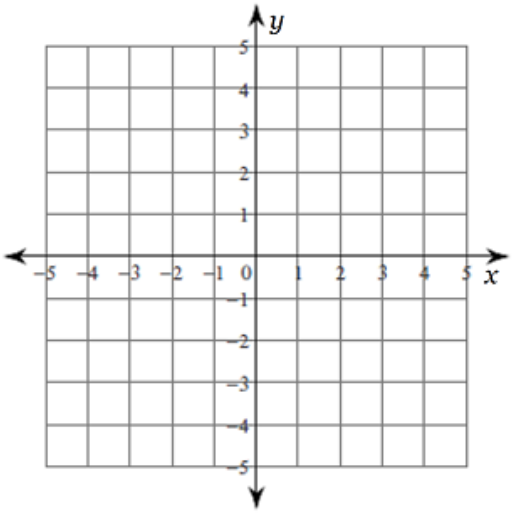
7. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} x - y = 3 \\ 7x = y - 3 \end{cases}$$



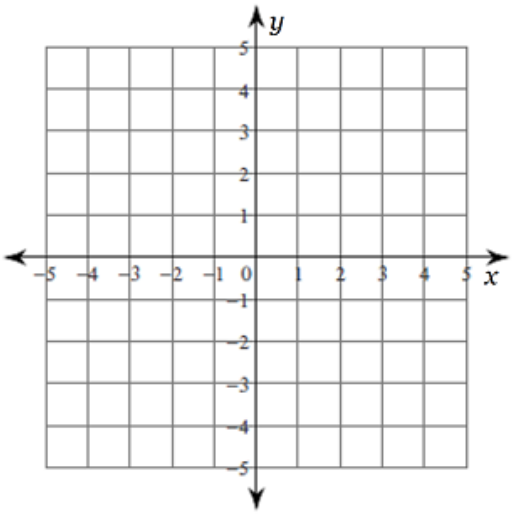
8. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} 4x = 2 - y \\ x = y + 3 \end{cases}$$



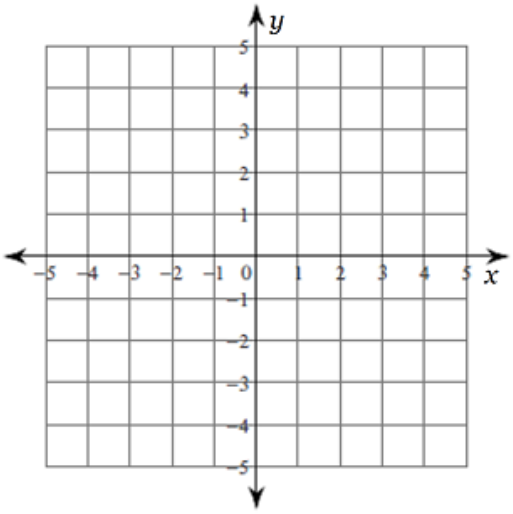
9. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} 4x - y = -3 \\ x + y = -2 \end{cases}$$



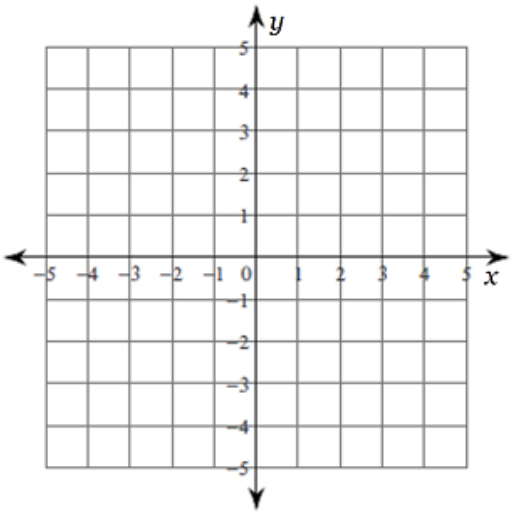
10. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} 3y = x - 9 \\ x + y = 1 \end{cases}$$



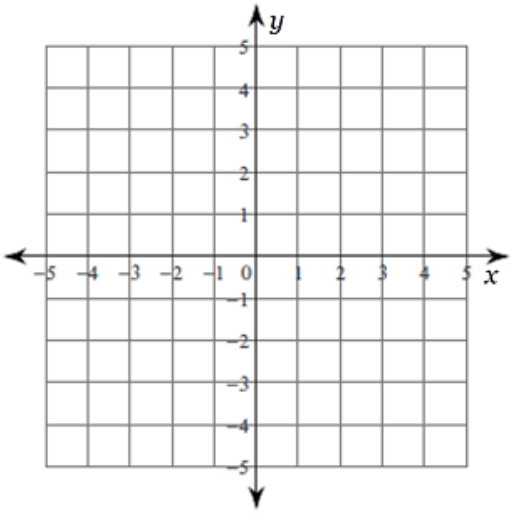
11. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y = -\frac{5}{3}x + 3 \\ y = \frac{1}{3}x - 3 \end{cases}$$



12. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y + 3 = 4x \\ 3 - y = 2x \end{cases}$$



Answers – Algebra 2 Course, Unit 2 – Worksheet 14 – Solving Systems of Linear Equations by Graphing, Part 1

1. Solve this system of equations by graphing. State the solution point.

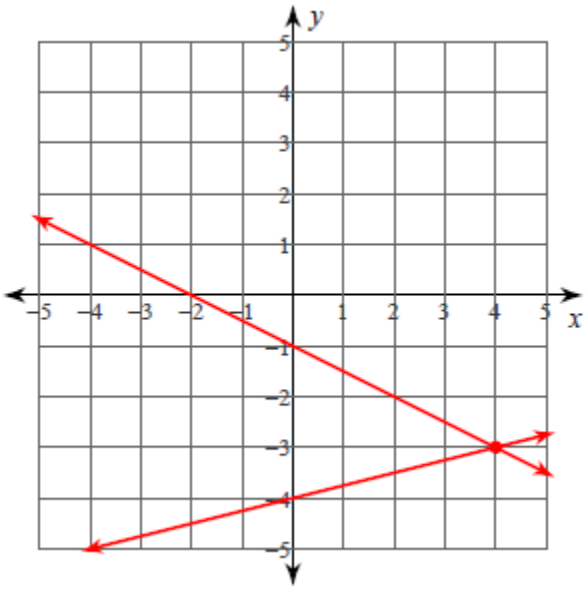
$$\begin{cases} y = -\frac{1}{2}x - 1 \\ y = \frac{1}{4}x - 4 \end{cases}$$

The equations are already in slope-intercept form, and are ready to be graphed.

In the first equation, $y = -\frac{1}{2}x - 1; m = -\frac{1}{2},\ b = -1.$

In the second equation, $y = \frac{1}{4}x - 4; m = \frac{1}{4}, b = -4.$

The graph is:



The two lines intersect at the point $(4, -3)$.

Answer: $(4, -3)$

2. Solve this system of equations by graphing. State the solution point.

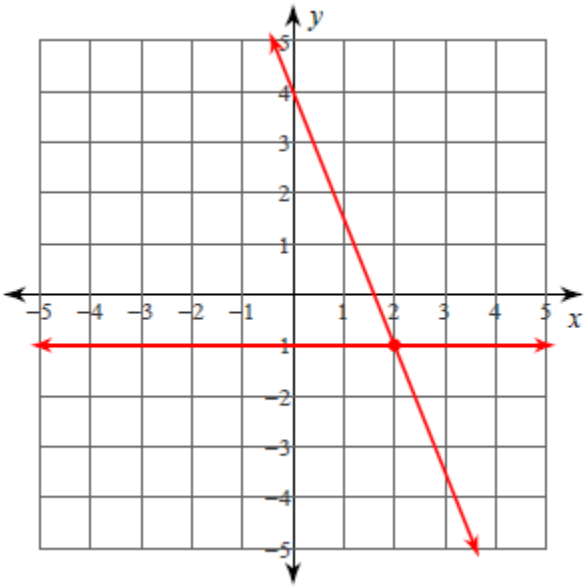
$$\begin{cases} y = -1 \\ y = -\frac{5}{2}x + 4 \end{cases}$$

The equations are already in slope-intercept form, and are ready to be graphed.

In the first equation, $y = -1$ or $y = 0x - 1; m = 0, b = -1.$

In the second equation, $y = -\frac{5}{2}x + 4; m = -\frac{5}{2}, b = 4.$

The graph is:



The two lines intersect at the point $(2, -1)$.

Answer: $(2, -1)$

3. Solve this system of equations by graphing. State the solution point.

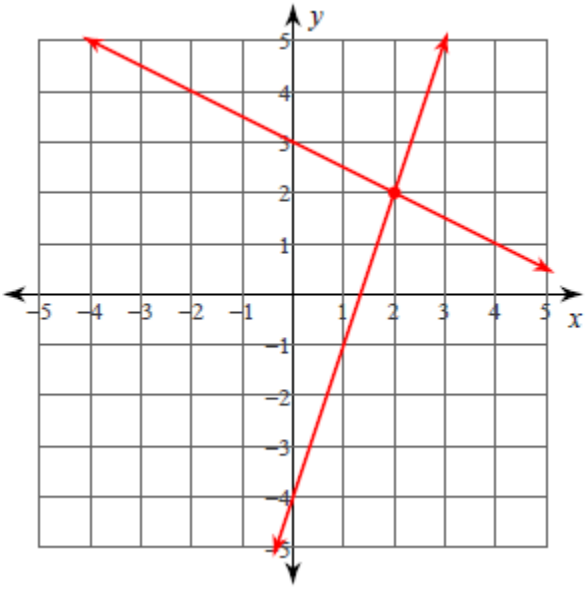
$$\begin{cases} y = 3x - 4 \\ y = -\frac{1}{2}x + 3 \end{cases}$$

The equations are already in slope-intercept form, and are ready to be graphed.

In the first equation, $y = 3x - 4; m = 3, b = -4.$

In the second equation, $y = -\frac{1}{2}x + 3; m = -\frac{1}{2}, b = 3.$

The graph is:



The two lines intersect at the point $(2, 2)$.

Answer: $(2, 2)$

4. Solve this system of equations by graphing. State the solution point.

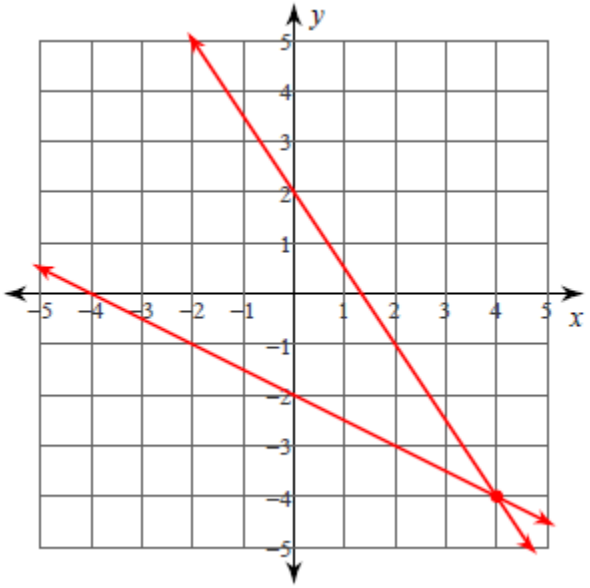
$$\begin{cases} y = -\frac{1}{2}x - 2 \\ y = -\frac{3}{2}x + 2 \end{cases}$$

The equations are already in slope-intercept form, and are ready to be graphed.

In the first equation, $y = -\frac{1}{2}x - 2; m = -\frac{1}{2}, b = -2.$

In the second equation, $y = -\frac{3}{2}x + 2; m = -\frac{3}{2}, b = 2.$

The graph is:



The two lines intersect at the point $(4, -4)$.

Answer: $(4, -4)$

5. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} 3x + y = 4 \\ 3x - y = 2 \end{cases}$$

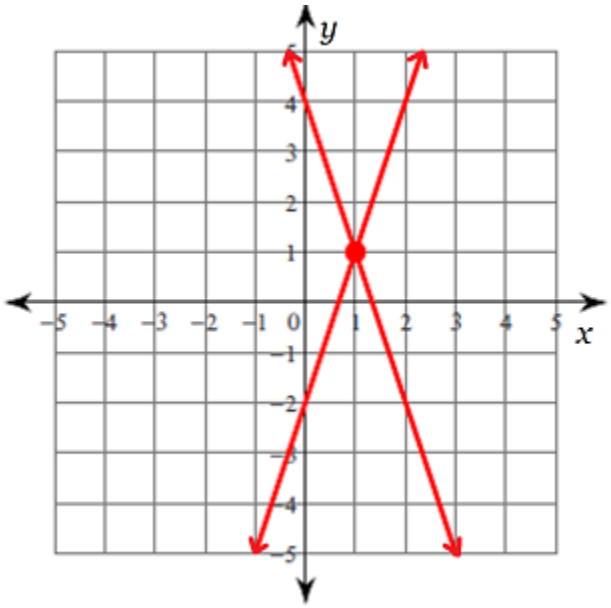
Convert the standard form equations to the slope-intercept form, $y = mx + b$.

In the first equation, $3x + y = 4$; $y = -3x + 4; m = -3, b = 4$.

In the second equation, $3x - y = 2$; $-y = -3x + 2$; $y = 3x - 2$;

$$m = 3, b = -2.$$

The graph is:



The two lines intersect at the point $(1, 1)$.

Answer: $(1, 1)$

6. Solve this system of equations by graphing. State the solution point.

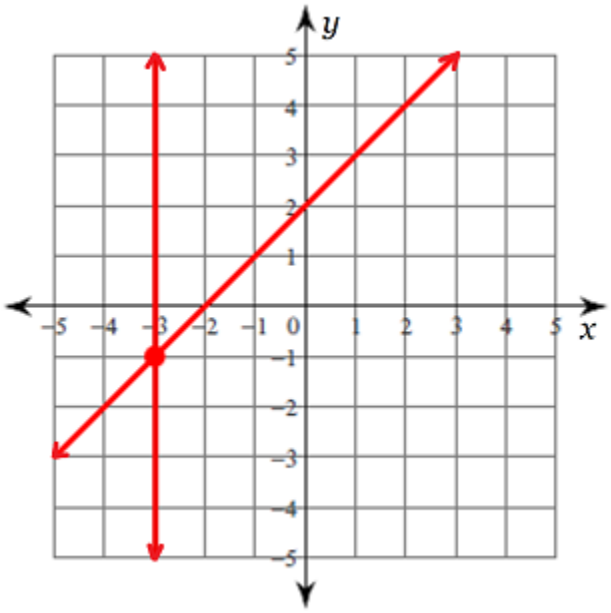
$$\begin{cases} x - y = -2 \\ x = -3 \end{cases}$$

Convert the standard form equation to the slope-intercept form, $y = mx + b$.

In the first equation, $x - y = -2;\ -y = -x - 2;\ y = x + 2; m = 1, b = 2.$

The second equation, $x = -3$, is a vertical line with an undefined slope and no *y*-intercept.

The graph is:



The two lines intersect at the point $(-3, -1)$.

Answer: $(-3, -1)$

7. Solve this system of equations by graphing. State the solution point.

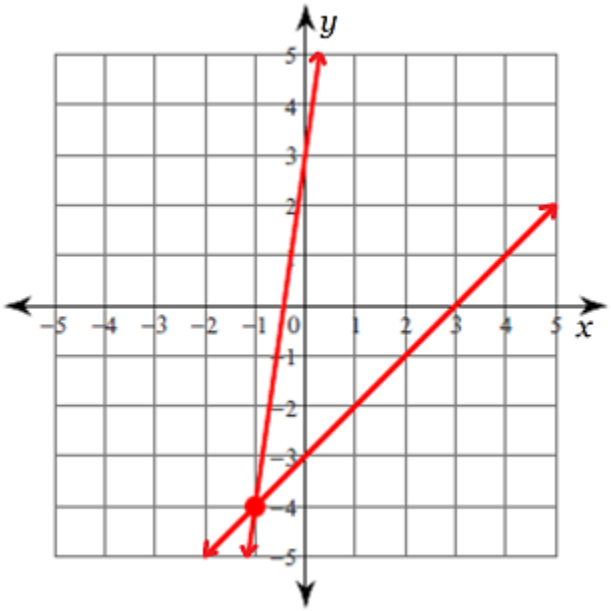
$$\begin{cases} x - y = 3 \\ 7x = y - 3 \end{cases}$$

Convert the standard form equations to the slope-intercept form, $y = mx + b$.

In the first equation, $x - y = 3;\ -y = -x + 3;\ y = x - 3; m = 1, b = -3.$

In the second equation, $7x = y - 3;\ -y = -7x - 3;\ y = 7x + 3; m = 7, b = 3.$

The graph is:



The two lines intersect at the point $(-1, -4)$.

Answer: $(-1, -4)$

8. Solve this system of equations by graphing. State the solution point.

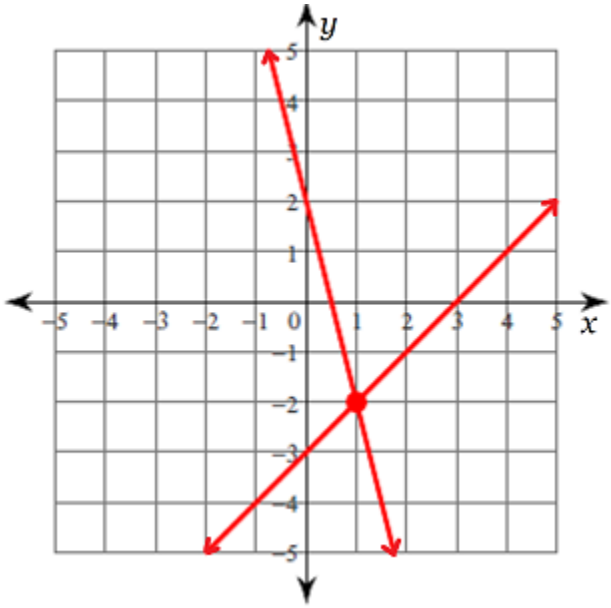
$$\begin{cases} 4x = 2 - y \\ x = y + 3 \end{cases}$$

Convert the equations to the slope-intercept form, $y = mx + b$.

In the first equation, $4x = 2 - y;\ \ y = -4x + 2; m = -4, b = 2.$

In the second equation, $x = y + 3;\ -y = -x + 3;\ y = x - 3; m = 1, b = -3.$

The graph is:



The two lines intersect at the point $(1, -2)$.

Answer: $(1, -2)$

9. Solve this system of equations by graphing. State the solution point.

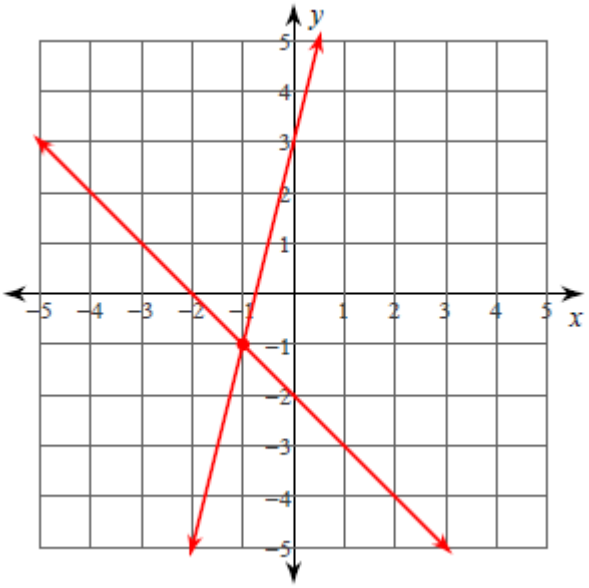
$$\begin{cases} 4x - y = -3 \\ x + y = -2 \end{cases}$$

Convert the standard form equations to the slope-intercept form, $y = mx + b$.

In the first equation, $4x - y = -3;\ -y = -4x - 3;\ \ y = 4x + 3; m = 4, b = 3.$

In the second equation, $x + y = -2;\ \ y = -x - 2; m = -1, b = -2.$

The graph is:



The two lines intersect at the point $(-1, -1)$.

Answer: $(-1, -1)$

10. Solve this system of equations by graphing. State the solution point.

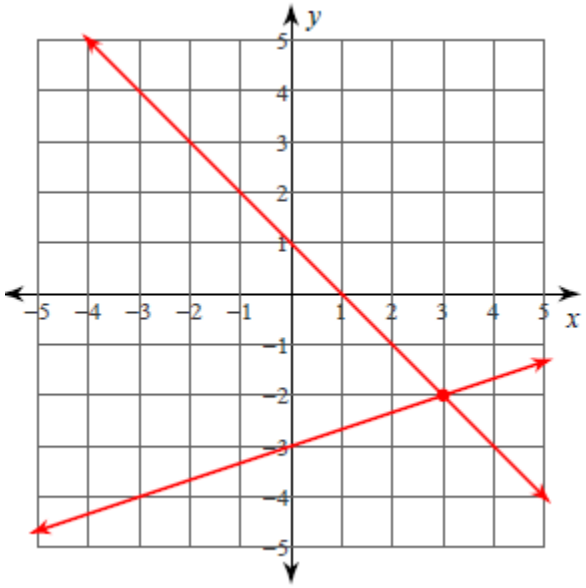
$$\begin{cases} 3y = x - 9 \\ x + y = 1 \end{cases}$$

Convert the equations to the slope-intercept form, $y = mx + b$.

In the first equation, $3y = x - 9$; $y = \frac{1}{3}x - 3; m = \frac{1}{3}, b = -3.$

In the second equation, $x + y = 1$; $y = -x + 1; m = -1, b = 1.$

The graph is:



The two lines intersect at the point $(3, -2)$.

Answer: $(3, -2)$

11. Solve this system of equations by graphing. State the solution point.

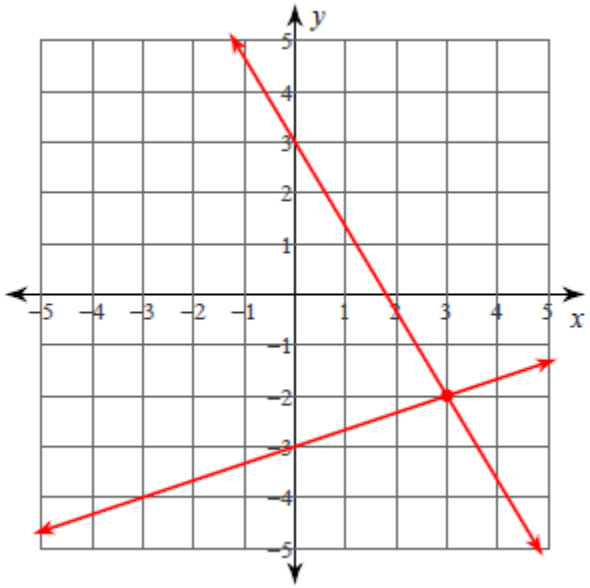
$$\begin{cases} y = -\frac{5}{3}x + 3 \\ y = \frac{1}{3}x - 3 \end{cases}$$

The equations are already in slope-intercept form, and are ready to be graphed.

In the first equation, $y = -\frac{5}{3}x + 3; m = -\frac{5}{3}, b = 3.$

In the second equation, $y = \frac{1}{3}x - 3; m = \frac{1}{3}, b = -3.$

The graph is:



The two lines intersect at the point $(3, -2)$.

Answer: $(3, -2)$

12. Solve this system of equations by graphing. State the solution point.

$$\begin{cases} y + 3 = 4x \\ 3 - y = 2x \end{cases}$$

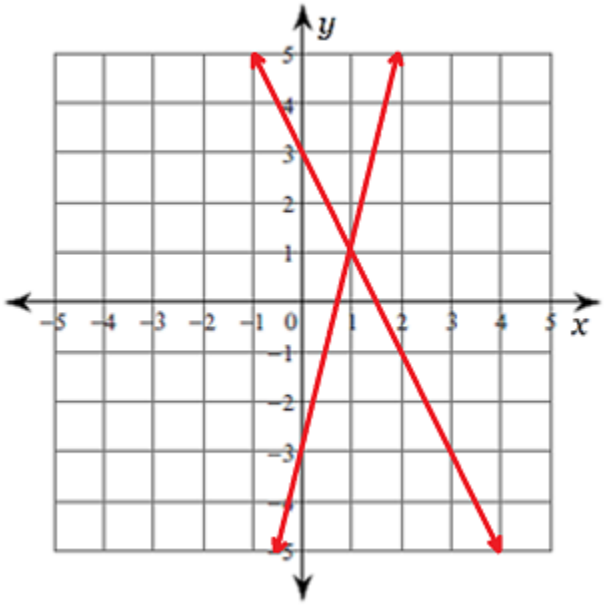
Convert the equations to the slope-intercept form, $y = mx + b$.

In the first equation, $y + 3 = 4x;\ \ y = 4x - 3; m = 4, b = -3.$

In the second equation, $3 - y = 2x;\ -y = 2x - 3;\ y = -2x + 3;$

$$m = -2, b = 3.$$

The graph is:



The two lines intersect at the point $(1, 1)$.

Answer: $(1, 1)$